

Appl. No. 10/731,346
Reply to Office Action of September 1, 2005

Attorney Docket No. 2002-1367 /24061.504
Customer No. 42717

Amendments To The Claims

Please cancel Claims 19-28 without prejudice. The following list of the claims replaces all prior versions and lists of the claims in this application.

1. (Currently amended) A method of forming a semiconductor device on a semiconductor substrate, comprising the steps of:
 - forming a gate dielectric layer on said semiconductor substrate;
 - forming a conductive gate structure on a first area of said gate dielectric layer;
 - forming first insulator spacers on the sides of said conductive gate structure with the procedure used to form said first insulator spacers also removing a second area of said gate dielectric layer, wherein said second area of said gate dielectric layer is not covered by said conductive gate structure or by said first insulator spacers;
 - forming a first doped region in an area of said semiconductor substrate not covered by said conductive gate structure ~~or by~~ or by said first insulator spacers;
 - forming ~~a second~~ second insulator spacers on the sides of said first insulator spacers; and
 - forming a second doped region in an area of said semiconductor substrate not covered by said conductive gate structure, not covered by said first insulator spacers, and not covered by said second insulator spacers.
2. (Original) The method of claim 1, wherein said gate dielectric layer is comprised of a layer selected from the group consisting of silicon nitride, tantalum oxide, silicon oxynitride, hafnium oxide, zirconium oxide, aluminum oxide and silicon oxide.
3. (Original) The method of claim 1, wherein the thickness of said gate dielectric layer is between about 10 to 200 Angstroms.

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4. (Original) The method of claim 1, wherein the dielectric constant of said gate dielectric layer is greater than 4.
5. (Original) The method of claim 1, wherein said conductive gate structure is comprised of doped polysilicon, at a thickness between about 300 to 3000 Angstroms.
6. (Original) The method of claim 1, wherein said conductive gate structure is comprised of metal silicide such as tungsten silicide.
7. (Original) The method of claim 1, wherein said first insulator spacers are comprised of silicon oxide, at a thickness between about 10 to 300 Angstroms.
8. (Original) The method of claim 1, wherein said first insulator spacers are comprised of silicon nitride, at a thickness between about 30 to 400 Angstroms.
9. (Currently amended) The method of claim 1, wherein the procedure used to define said first insulator spacers on sides of said conductive gate structure, and to remove exposed portions of said gate dielectric layer, is an anisotropic RIE procedure performed using Ar/CF₄ as a selective etchant for said first insulator ~~spacer~~ spacers and for said gate dielectric layer.
10. (Currently amended) A method of forming a semiconductor device on a semiconductor substrate featuring a high dielectric constant ~~(high k)~~, gate (high k) gate insulator layer, comprising the steps of:
- forming said high k gate insulator layer on said semiconductor substrate;
 - forming a conductive gate structure overlying a first area of said high k gate insulator layer;

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depositing an insulator layer;

performing a dry etch procedure to first define first insulator spacers on the sides of said conductive gate structure via etching of said insulator layer, and then to remove exposed portions of said high k gate dielectric layer, wherein said exposed portions of said high k gate insulator layer are portions not covered by said conductive gate structure or by said first insulator spacers;

forming a lightly doped source/drain region in an area of said semiconductor substrate not covered by said conductive gate structure ~~of by~~ or by said first insulator spacers;

forming second insulator spacers on the sides of said first insulator spacers; and

forming a heavily doped source/drain region in an area of said semiconductor substrate not covered by said conductive gate structure, not covered by said first insulator spacers, and not covered by said second insulator spacers.

11. (Currently amended) The method of claim 10, wherein said high k gate insulator layer is ~~layer~~ selected from the group consisting of silicon nitride, tantalum oxide, silicon oxynitride, zirconium oxide, hafnium oxide, aluminum oxide, and silicon oxide.

12. (Original) The method of claim 10, wherein the thickness of said high k gate insulator layer is between about 10 to 200 Angstroms.

13. (Original) The method of claim 10, wherein the dielectric constant of said high k gate insulator layer is greater than 4.

14. (Original) The method of claim 10, wherein said conductive gate structure is comprised of doped polysilicon, at a thickness between about 300 to 3000 Angstroms.

15. (Original) The method of claim 10, wherein said conductive gate structure is comprised of tungsten silicide.

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16. (Original) The method of claim 10, wherein said insulator layer is selected from the group consisting of silicon oxide, silicon nitride, or silicon oxynitride.

17. (Original) The method of claim 10, wherein the thickness of said insulator layer is between about 30 to 500 Angstroms.

18. (Currently amended) The method of claim 10, wherein the procedure used to both define said first insulator spacers on sides of said conductive gate structure, and to remove exposed portions of said high k gate insulator layer, is an anisotropic RIE procedure performed using Ar/CF₄ as a selective etchant for said insulator layer and for said high k gate insulator.

Claims 19-28 (Canceled).